

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1 to 18 (canceled)

Claim 19 (new) A method of delivering nucleic acid to an avian embryo comprising:

providing a microinjection assembly comprising a microscope and a microinjection system which comprises a micropipette;

loading nucleic acid to the microinjection system;

positioning the micropipette relative to an avian embryo by monitoring the position of the micropipette from an angle that is other than parallel to a line between a tip of the micropipette and the avian embryo;

delivering the nucleic acid to the avian embryo,

thereby delivering nucleic acid to an avian embryo.

Claim 20 (new) The method of claim 19 comprising delivering the avian embryo to a recipient avian female.

Claim 21 (new) The method of claim 20 comprising allowing the avian embryo to develop into a chick.

Claim 22 (new) The method of claim 19 wherein the microscope is a light microscope.

Claim 23 (new) The method of claim 19 wherein the microscope comprises an objective with an optical axis.

Claim 24 (new) The method of claim 23 wherein the embryo is positioned in an incident light beam in the optical axis of the objective.

Claim 25 (new) The method of claim 19 wherein the positioning the micropipette relative to the avian embryo is performed using an oblique macro-monitoring system.

Claim 26 (new) The method of claim 19 wherein the positioning the micropipette relative to the avian embryo is performed using a monitoring system.

Claim 27 (new) The method of claim 19 wherein the microinjection system is operably connected to a micromanipulator.

Claim 28 (new) The method of claim 19 wherein the microinjection assembly comprises an oscillator.

Claim 29 (new) The method of claim 28 wherein the oscillator comprises a piezo-electric oscillator.

Claim 30 (new) The method of claim 19 wherein an oscillation is applied to the microinjection system.

Claim 31 (new) The method of claim 30 wherein the oscillation is applied to the micropipette.

Claim 32 (new) The method of claim 19 wherein the nucleic acid is in solution.

Claim 33 (new) The method of claim 19 wherein an isolated cell nucleus or an isolated spermatozoon comprises the nucleic acid.

Claim 34 (new) The method of claim 19 wherein the avian embryo is an embryo of a of an avian selected from the group consisting of a chicken, turkey, quail, pheasant, duck, goose, ostrich, emu and swan.

Claim 35 (new) The method of claim 20 wherein the avian embryo is delivered to the recipient avian female by fistulation or by delivering to a surgically exposed avian infundibulum.

Claim 36 (new) A method of producing a transgenic avian comprising:

providing a microinjection assembly comprising a microscope and a microinjection system which comprises a micropipette;

loading the microinjection system with nucleic acid;

positioning the micropipette relative to an avian embryo by monitoring the position of the micropipette from an angle that is other than parallel to a line between a tip of the micropipette and the avian embryo;

delivering the nucleic acid to the avian embryo;

delivering the avian embryo to a recipient avian female;

allowing the avian embryo to develop into a chick.

thereby producing a transgenic avian.

Claim 37 (new) The method of claim 36 wherein the microscope is a light microscope.

Claim 38 (new) The method of claim 36 wherein the microscope comprises an objective with an optical axis.

Claim 39 (new) The method of claim 38 wherein the embryo is positioned in an incident light beam in the optical axis of the objective.

Claim 40 (new) The method of claim 36 wherein the positioning the micropipette relative to the avian embryo is performed using an oblique macro-monitoring system.

Claim 41 (new) The method of claim 19 wherein the positioning the micropipette relative to the avian embryo is performed using a monitoring system.

Claim 42 (new) The method of claim 36 wherein the microinjection system is operably connected to a micromanipulator.

Claim 43 (new) The method of claim 36 wherein the microinjection assembly comprises an oscillator.

Claim 44 (new) The method of claim 43 wherein the oscillator comprises a piezo-electric oscillator.

Claim 45 (new) The method of claim 36 wherein an oscillation is applied to the microinjection system.

Claim 46 (new) The method of claim 45 wherein the oscillation is applied to the micropipette.

Claim 47 (new) The method of claim 36 wherein the nucleic acid is in solution.

Claim 48 (new) The method of claim 36 wherein an isolated cell nucleus or an isolated spermatozoon comprises the nucleic acid.

Claim 49 (new) The method of claim 36 wherein the avian embryo is an embryo of a of an avian selected from the group consisting of a chicken, turkey, quail, pheasant, duck, goose, ostrich, emu and swan.

Claim 50 (new) The method of claim 36 wherein the avian embryo is delivered to the recipient avian female by fistulation or by delivering to a surgically exposed avian infundibulum.